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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/617,190 | 07/11/2003 | Takeshi Kusudou | 240331US0 | 3529 |

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

REDDICK, MARIE L

ART UNIT PAPER NUMBER

1713

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|----------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/617,190 | KUSUDOU ET AL. | |
| | Examiner | Art Unit | |
| | Judy M. Reddick | 1713 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/11/03;10/14/03;11/21/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>11/21/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statements filed 10/14/03 & 11/21/03 have been considered and scanned into the application file.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recited "polymer molecules" per claim 2 constitutes indefinite subject matter as per the non-express establishment of proper antecedent basis.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1713

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-5 & 7-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Maruyama et al (U.S. 4,567,221, 1-5 & 8-19) or Maruyama et al (U.S. 4,708,947, 1-5 & 7-19).

Maruyama et al'221, as applied to claims 1-5 and 8-19, teach water-resistant compositions useful for treating inorganic materials, surface coating agents, defogging compositions which are used for coating transparent materials and films and/or sheets therefrom (4 & 5) wherein said composition is defined basically as containing a modified polyvinyl alcohol (PVA) containing a silyl group in the molecule (1-3 & 9-12), inorganic substance and other conventional additives such as defogging agents, surface active agents, etc. wherein the modified PVA containing a silyl group in the molecule is made by a process which comprises saponifying a copolymer of a vinyl ester and a silyl group-containing olefinically unsaturated monomer in an alcohol using a radical initiator and subsequently adding alkali or acid catalyst to an alcoholic solution of said copolymer to saponify the copolymer (Abstract, col. 2, lines 23-49, col. 6, lines 53-68, col. 7, lines 1-27 & col. 9, lines 3-16). Maruyama et al'221 further specifically teach that the vinyl ester used in the process includes vinyl acetate, vinyl propionate, vinyl formate, etc., with vinyl acetate being preferred, and that the silyl group-containing olefinically unsaturated monomer used in the process includes vinylsilanes on the formula "CH₂=CH-(CH₂)_n-SiR_m1-(R₂)_{3-m}" such as vinyltrimethoxysilane (19), vinyltriethoxysilane, etc. wherein R₂ is an alkoxy or acyloxy group having 1-40 carbon atoms and optionally having an oxygen substituent (8, 16-18) and (meth)acrylamidoalkylsilanes of the formula "CH₂=CR₃-CONR₄-R₅-SiR_m1-(R₂)_{3-m}" such as 3-(meth)acrylamide-propyltriethoxysilane, etc. (col. 3, lines 19-68 and col. 4, lines 1-33, 16-19). Maruyama et al'221 further teach that the content of silyl groups is from 0.01-10 molar % (14 & 15), the degree of saponification is in the range of 70 to 100 molar % (13) and degree of polymerization is in the range of 10-3,000 (col. 5, lines 16-28, 1).

Maruyama et al'947, as applied to claims 1-5 & 7-19, teach a water-resistant composition which comprises (A) a polyvinyl alcohol such as a silyl group-modified polyvinyl alcohol (PVA, 1-3 & 9-12), (B) a chitosan and an aldehyde compound, useful as a heat sensitive recording sheet (4, 5 & 7), wherein said silyl group-modified polyvinyl alcohol is made by a process which comprises hydrolyzing a copolymer of a vinyl ester and a silyl group-containing olefinically unsaturated monomer in an alcohol using a radical initiator and subsequently adding alkali or acid catalyst to an alcoholic solution of said copolymer to hydrolyze the copolymer (Abstract, col. 4, lines 9-68, col. 8, lines 65-68, col. 9, lines 1-4 & col. 10, lines 44-68). Maruyama et al'947 further specifically teach that the vinyl ester used in the process includes vinyl acetate, vinyl propionate, vinyl formate, etc., with vinyl acetate being preferred, and that the silyl group-containing olefinically unsaturated monomer used in the process includes vinylsilanes of the formula " $\text{CH}_2=\text{CH}-(\text{CH}_2)_n-\text{SiR}_m1-(\text{R}_2)_3-m$ " such as vinyltrimethoxysilane (19), vinyltriethoxysilane, etc. wherein R_2 is an alkoxy or acyloxy group having 1-40 carbon atoms and optionally having an oxygen substituent (8 & 16-18) and (meth)acrylamidoalkylsilanes of the formula " $\text{CH}_2=\text{CR}_3-\text{CONR}_4-\text{R}_5-\text{SiR}_m1-(\text{R}_2)_3-m$ " such as 3-(meth)acrylamide-propyltriethoxysilane, etc. (col. 4, lines 47-68 and col. 5, lines 1-39, 16-19). Maruyama et al'947 further teach that the content of silyl groups is from 0.01-10 molar % (14 & 15), the degree of hydrolysis is in the range of 70 to 100 molar % (13) and degree of polymerization is in the range of 10-3,000 (col. 7, lines 1-11, 1).

Each of Maruyama et al'221 and Maruyama et al'947 therefore anticipate the instantly claimed invention.

The silyl group-modified polyvinyl alcohol component of each of patentees appears to satisfy the formulae (I) & (II) and the limitations per claims 9-12. As to the pH limitation per claim 3, it would be expected that the limitation would be met by an aqueous solution of the silyl group-modified polyvinyl alcohol components of each of patentees since the silyl group modified polyvinyl alcohol component of each of patentees is essentially the same as and made under essentially the same conditions as the claimed polyvinyl alcohol.

It has been held that where applicants claims a composition in terms of function, property of characteristic where said function is not explicitly shown by the reference and where the Examiner has explained why the function, property or characteristics is considered inherent in the prior art, it is appropriate for the Examiner to make a rejection under both

the applicable sections of 35 USC 102 and 35 USC 103 such that the burden is placed upon applicant to provide clear evidence that the respective compositions do, in fact, differ as provided for under the guise of *In re Best*, 195 USPQ 430, 433(CCPA 1977); *In re Fitzgerald et al*, 205 USPQ 594.

Moreover, when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim it is appropriate for the examiner to make a rejection under both the applicable section of 35 USC 102 and 35 USC 103 such that the burden is placed upon applicant to provide clear and convincing factual evidence that the respective products do in fact differ in kind - *In re Brown*, 59 CCPA 1063, 173 USPQ 685 (1972); *In re Fessman*, 180 USPQ 324 (CCPA 1974) - and to come forward with evidence establishing unobvious differences between the claimed product and the prior art product. *In re Marosi* 218 USPQ 289.

Even if it turns out that the Examiner has somehow missed the boat and the claims are not anticipated by the disclosure of *Maruyama et al*'221 or *Maruyama et al*'947, it would have been obvious to the skilled artisan to extrapolate, from the disclosures of patentees, the precisely defined polyvinyl alcohol, as claimed, as per such having been within the purview of the general disclosures of patentees and with a reasonable expectation of success.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama et al (U.S. 4,708,947) in combination with Nagasaki et al (U.S. 6,326,075 B1) or Kitamura et al (U.S. 6,689,432 B2).

Maruyama et al is relied upon for all that is taught as stated in the Grounds of Rejection supra as applied to claims 1-5 & 7-19. Further, the disclosure of Maruyama et al differs basically from the claimed invention as per the non-express teaching of utility of the water-resistant composition as an ink-jet recording material, as claimed. However, each of Nagasaki et al and Kitamura et al teach the use of a similar such silyl group-modified polyvinyl alcohol as a component in obtaining an ink jet recording sheet of improved properties (Run 1 of Nagasaki et al & Run II-2 and II-3 of Kitamura et al). Therefore, it would have been obvious to the skilled artisan to use the silyl-group modified polyvinyl alcohol-composition of Maruyama et al as an ink jet recording material, based on structural similarities, and with a reasonable expectation of success.

Claim Rejections - 35 USC § 103

12. Claims 6 & 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama et al (U.S. 4,567,221) in combination with Maruyama et al (U.S. 4,708,947) and further in combination with Nagasaki et al (U.S. 6,326,075 B1) or Kitamura et al (U.S. 6,689,432 B2).

The disclosure of Maruyama et al'221 is relied upon for all that is taught as stated in the Grounds of Rejection supra as applied to claims 1-5 & 8-19. Further, the disclosure of Maruyama et al'221 differs basically from the claimed

invention as per the non-express teaching of utilities of the water-resistant composition as an ink jet recording material (6) and a thermal recording material (7). However, it is known per Maruyama et al'947 to use similar such water-resistant compositions in obtaining heat-sensitive recording materials (col. 10, lines 44-61). Further, each of Nagasaki et al and Kitamura et al teach the use of a similar such silyl group-modified polyvinyl alcohol as a component in obtaining an ink jet recording sheet of improved properties (Run 1 of Nagasaki et al & Run II-2 and II-3 of Kitamura et al). Therefore, it would have been obvious to the skilled artisan to use the silyl-group modified polyvinyl alcohol-composition of Maruyama et al as an ink jet recording material, based on structural similarities, and with a reasonable expectation of success. It further would have been obvious to the skilled artisan to use the disclosed water-resistant compositions of patentee in obtaining a heat-sensitive recording material, based on the structural similarities of the compositions of Maruyama et al'221 and Maruyama et al'947 and with a reasonable expectation of success.

Double Patenting

13. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A

terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

14. Claims 1-19 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of copending Application No. 10/616,982. Although the conflicting claims are not identical, they are not patentably distinct from each other because the polyvinyl alcohol obtained by hydrolysis of a polyvinyl ester comprising polymerized silyl group functionalized monomer units of the formula (1); -Si(R₁)_m-(R₂)_{3-m}, coating agent, coated article, ink-jet recording material, thermal recording material and method of

production of the antecedently recited polyvinyl alcohol per the claims of copending application U.S. '982 overlaps in scope with the polyvinyl alcohol obtained by hydrolysis of a polyvinyl ester comprising polymerized silyl group functionalized monomer units of the formula (1); $-\text{Si}(\text{R}_1)_m(\text{R}_2)_{3-m}$, coating agent, coated article, ink-jet recording material, thermal recording material and method of production of the antecedently recited polyvinyl alcohol per the instant claims. It would be expected that the polyvinyl alcohol component of the claims of U.S. copending application '982 would satisfy the formulae per the instant claims since the polyvinyl alcohol components are essentially the same.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

15. The additional prior art, listed on the attached FORM PTO 892, is cited as of interest in teaching modified polyvinyl alcohol components and is considered merely cumulative to the prior art supra.

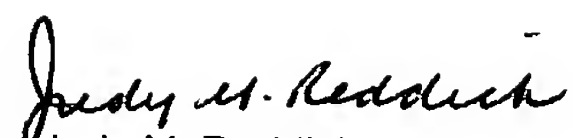
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judy M. Reddick whose telephone number is (571)272-1110. The examiner can normally be reached on Monday-Friday, 6:30 a.m.-3:00 p.m..


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571)272-1114. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Judy M. Reddick
Primary Examiner
Art Unit 1713

JMR 
09/29/04